

Andrew Schechtman-Rook

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<https://github.com/AndrewRook>

EDUCATION

Ph.D., Astronomy, University of Wisconsin-Madison
MS, Astronomy, University of Wisconsin-Madison
BS, Astronomy, Case Western Reserve University

December 2013
June 2009
May 2007

EXPERIENCE

Manager, Data Science

2016-present

Capital One

- Created a Python library to facilitate the creation and refinement of robust, production-ready data analysis pipelines, saving hundreds of hours of R&D effort.
- Led development of a proof-of-concept automated machine learning model deployment scheme for cloud-based applications, and helped multiple teams implement the system in their own projects.
- Constructed a model to predict customer credit-card spend based on application information 25% better than existing design, and advised leadership on its value and proper use.

Principal Data Scientist

2014-2016

Capital One Labs

- Built and deployed an interactive course completion dashboard using Flask and dc.js to provide progress reports to individual students as well as company leadership.
- Implemented a novel approach to deliver internal technical trainings, providing over 5000 hours of classes with no instructors.
- Engineered a credit card payment simulator, allowing a product team to gain actionable insights without expensive pilot programs.

Data Science Fellow

2014

The Data Incubator

- Trained a model on historical airline on-time arrival data to predict flight delay times.
- Designed a web interface to provide interactive itinerary input and visualizations to intuitively display model results.

Independent NFL Analyst

2013-Present

phdfootball.blogspot.com

- Designed a responsive web-based dashboard allowing users to visually filter 350,000 plays to identify and explore interesting game situations.
- Authored a Python library to compute play-by-play win probabilities based on game situation.
- Developed a program to automatically remove camera motion from NFL game footage.

Graduate and Postdoctoral Researcher

2007-2014

University of Wisconsin-Madison

- Devised a fast Voronoi Tessellation algorithm in Python to adaptively bin images, preserving spatial resolution while maximizing signal in images with over one million pixels.
- Assembled a hybrid C++/Python processing pipeline to process hundreds of high-resolution images with minimal user intervention, resulting in a 10x increase in analysis precision.
- Created a genetic algorithm in C++ to efficiently fit complex galaxy models to high-resolution images.
- Computed descriptive statistics about 200+ astronomical objects from raw survey data automatically via custom-built analysis software blending C++ and shell scripts.

SKILLS

Programming: Python, shell scripting, C++, Javascript.

Databases and Web Design: Flask/Django, MySQL/PostgreSQL, Hive/Beeline.

Cloud Computing: AWS (EC2, ECS, S3, Cloudformation), Ansible. **Operating Systems:** Linux, Mac OS X.

Data Analysis: Parallel and distributed computing, machine learning, spatial analysis, image processing, machine vision.